



उत्पाद मैनुअल

आई एस 302 (भाग 2/ अनुभाग 21) : 2024/ आई ई सी 60335-2-21 : 2022 के अनुसार घरेलु और समान विद्युत साधित्रों की सुरक्षा भाग 2 विशेष अपेक्षाएँ अनुभाग 21 भण्डार किस्म के बिजली के वाटरहीटर (तीसरा पुनरीक्षण) के लिए

दस्तावेज संख्या – पीएम/आईएस 302-2-21/ आई ई सी 60335-2-21/3/ सितम्बर 2024 विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो (अनुरूपता मूल्यांकन) विनियम, 2018 की योजना- I के तहत प्रमाणन के संचालन में एकरूपता और पारदर्शिता के लिए इस उत्पाद मैनुअल का उपयोग सभी क्षेत्रीय / शाखा कार्यालयों और लाइसेंसधारियों द्वारा संदर्भ सामग्री के रूप में किया जाएगा। दस्तावेज का उपयोग बीआईएस प्रमाणन प्राप्त करने के इच्छुक संभावित आवेदकों द्वारा भी किया जा सकता है।

PRODUCT MANUAL FOR

**SAFETY OF HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES
PART 2 PARTICULAR REQUIREMENTS SECTION 21 STATIONARY
STORAGE TYPE ELECTRIC WATER HEATERS (THIRD REVISION)**

ACCORDING TO IS 302 (Part 2/ Sec 21) : 2024/ IEC 60335-2-21 : 2022

Document No - PM/IS 302-2-21/IEC 60335-2-21/3/September 2024

This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure uniformity of practice and transparency in operation of certification under Scheme-I of Bureau of Indian Standards (Conformity Assessment) Regulations, 2018 for various products. The document may also be used by prospective applicants desirous of obtaining BIS certification.

भारतीय मानक ब्यूरो

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उत्पाद मैनुअल

घरेलु और समान विद्युत साधित्रों की सुरक्षा भाग 2 विशेष अपेक्षाएँ
अनुभाग 21 भण्डार किस्म के बिजली के वाटरहीटर (तीसरा पुनरीक्षण)
आई एस 302 (भाग 2/ अनुभाग 21) : 2024/ आई ई सी 60335-2-21 : 2022 के अनुसार

PRODUCT MANUAL

SAFETY OF HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES PART 2 PARTICULAR REQUIREMENTS SECTION 21 STATIONARY STORAGE TYPE ELECTRIC WATER HEATERS (THIRD REVISION)

ACCORDING TO IS 302 (Part 2/ Sec 21) : 2024/ IEC 60335-2-21 : 2022

विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो (अनुरूपता मूल्यांकन) विनियम, 2018 की योजना- I के तहत प्रमाणन के संचालन में एकरूपता और पारदर्शिता के लिए इस उत्पाद मैनुअल का उपयोग सभी क्षेत्रीय / शाखा कार्यालयों और लाइसेंसधारियों द्वारा संदर्भ सामग्री के रूप में किया जाएगा। दस्तावेज़ का उपयोग बीआईएस प्रमाणन प्राप्त करने के इच्छुक संभावित आवेदकों द्वारा भी किया जा सकता है।

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NOTE:

Manufacturers of 'Stationary Storage Type Electric Water Heaters' are required to take BIS certification as per IS 2082 : 2018. Then the requirements of the product as per IS 302 (Part 2/ Sec 21) : 2024/ IEC 60335-2-21 : 2022 are deemed complied.

1.	मानक संख्या IS No.	:	IS 302 (Part 2/ Sec 21) : 2024/ IEC 60335-2-21 : 2022
	शीर्षक Title	:	Safety of Household and Similar Electrical Appliances Part 2 Particular Requirements Section 21 Stationary Storage Type Electric Water Heaters (Third Revision)

	संशोधनों की संख्या No. of amendments	:	NIL
2.	नमूना दिशानिर्देश Sampling Guidelines:		
a)	कच्चा माल Raw material	:	Components as per Cl. 24 of IS 302 (Part 2/ Sec 21)
b)	समूहीकरण दिशानिर्देश Grouping Guidelines	:	Please refer ANNEX – A
c)	नमूने का परिमाण Sample Quantity	:	2 numbers
3.	परीक्षण उपकरणों की सूची List of Test Equipment	:	Please refer ANNEX – B
4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	:	Please refer ANNEX – C
5.	एक दिन में संभावित परीक्षण Possible tests in a day:	:	Please refer ANNEX-D
6.	लाइसेंस का दायरा /Scope of the Licence	:	As per below table
	Licence is granted to use Standard Mark as per IS 302 (Part 2/ Sec 21) : 2024/ IEC 60335-2-21 : 2022 with the following scope:		
	Name of the Product	Household and similar appliances – Stationary Storage Type Electric Water Heaters	
	Model No.		
	Class	Class of Appliance I/II/III	
	Type	Closed / Open-Outlet/ Cistern-fed/ Cistern-type/Low-pressure/Heat Exchange	
	Grade	Pollution Degree ____, Material Group____	
	Material of Inner Tank	Stainless Steel/ Copper Tank/ Vitreous Enamelled Tank/ any other material as declared by the manufacturer	
	Rating	____ W, ____ V, ____ Hz, ____Phase, ____ Pa	

	Capacity (in L)	As declared by the manufacturer
	Degree of protection	_____

ANNEX – A

समूहीकरण दिशानिर्देश **Grouping Guidelines**

- 1) Manufacturer shall declare parameters indicated in the scope of the licence of Stationary Storage Type Electric Water Heaters produced by them with a model number.
- 2) For grant of licence/ change in scope of licence, each model of Stationary Storage Type Electric Water Heaters to be tested. Change in aesthetics, i.e colour, visual design etc may not be treated as different model.
- 3) The Firm shall declare the varieties of Stationary Storage Type Electric Water Heaters they intend to cover in the Licence. The Scope of Licence may be restricted based on the Manufacturing capability and testing facilities of the Manufacturer.
- 4) During the operation of the Licence, BO shall ensure that all the models covered in the Licence are tested in rotation to the extent possible.

ANNEX – B

परीक्षण उपकरणों की सूची

List Of Test Equipment***(INDICATIVE LIST, FOR GUIDANCE ONLY)******Major test equipment required to test as per the Indian Standard***

Sl. No.	Tests Used in With Clause Reference	Test Equipment/Chemical
1.	Cl. 10, Cl. 13, Cl. 16, Cl. 27	Voltmeter, Ammeter, Wattmeter, Micro ammeter, Mega Ohm Meter, Frequency Meter, Test Finger, Mili Ammeter
2.	Cl. 13.3	High Voltage Tester, Voltmeter, mili Ammeter
3.	Cl. 30	Glow Wire Test Apparatus – Temperature Indicator, Timer
4.	Cl. 14, Cl. 17, Cl. 19	Endurance Test Apparatus (Voltmeter, Ammeter, Wattmeter, Energy Meter, Counter Meter, Timer)
5.	Cl. 11	Temperature Indicator
6.	Cl. 15	Humidity Chamber (Temperature Indicator, Temperature Controller, Thermo hygrometer, Hour Meter), Test set up for degree of protection against moisture
7.	Cl. 23, Cl. 24, Cl. 26, Cl. 28, Cl. 29	Torque Screw Driver, Micrometer, Vernier Caliper, Gauges
8.	Cl. 22.101	Pressure Gauge, Vacuum Gauge
9.	Cl. 30	Hot Air Oven, Ball Pressure Test Apparatus
10.	Cl. 25	Cord Grip Test Apparatus
11.	Cl. 21	Impact Tester

Note: The above list is indicative only and may not be treated as exhaustive.

ANNEX – C

निरीक्षण और परीक्षण की स्कीम

Scheme Of Inspection And Testing

1. QUALITY ASSURANCE PLAN

1.1 It is expected that manufacturers (licensees/applicants) will implement a Quality Assurance Plan i.e. a plan of regular testing and in-process controls, designed to ensure that the product bearing the Standard Mark conforms to all requirements of the Indian Standard.

1.2 The manufacturers shall define a Quality Assurance Plan defining the control unit (i.e. lot/batch etc.) and the levels of control (i.e. the frequency and number of samples for conducting the different tests as per the Indian Standard) and submit the same to BIS Branch Office for information. The manufacturer shall comply with the same and maintain test records in accordance with para 2.4.

1.3 RECOMMENDED LEVELS OF CONTROL/CONTROL UNIT:

1.3.1 For the guidance of manufacturers, the recommended definition of control unit is: **All stationary storage type electric water heaters of each model number manufactured in a day, shall constitute a control unit.** The manufacturer has the choice to define their own control unit/batch/lot and submit the same to the BIS.

1.3.2 For the guidance of manufacturers in preparing the Quality Assurance Plan, recommended levels of control are given in **Table 1**.

1.3.3 The manufacturer shall ensure inspection and testing as per the Quality Assurance Plan submitted by them on the whole production of the factory which is covered by this plan. Alternatively, the manufacturer has the option of adherence to the quality plan as per levels of control recommended in column 3 of Table 1.

1.4 However, all manufacturers shall ensure compliance of their products to all the requirements of the Indian Standard.

2. ENSURING COMPLIANCE THROUGH TESTING- It is expected that manufacturers (licensees/applicants) will establish a suitably equipped and staffed in house laboratory (In house testing facility) for testing at least those parameters of the Indian Standard which require routine testing for ensuring quality of the product. This includes in-process controls as may be defined and put in place by the manufacturer and testing parameters/requirements which can only be performed in the factory.

2.1 For the guidance of manufacturers, Table 1 giving the recommended levels of control is given below. Column 2 of Table 1 indicates routine tests where test equipment is required in house as “R” or other tests which can be subcontracted as “S”. Subcontracting is permitted to BIS recognized/empanelled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

2.2 For MSME manufacturers, the requirement of maintaining a laboratory/in-house testing facility for routine tests (indicated as “R” in Column 2 of Table 1) is also optional.

2.2.1 MSME manufacturers may utilize common cluster based facilities as per guidelines for the utilization of cluster based test facilities by MSMEs or the provisions of Sharing of testing facilities or get testing done

from BIS recognized/empaneled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

2.3 Large Scale manufacturers shall maintain an in-house laboratory equipped at least with test facilities for routine tests (indicated as “R” in Column 2 of Table 1), where different tests given in the specification shall be carried out in accordance with the method given in the specification. They shall also implement a calibration plan for the in-house test equipment.

2.3.1 Alternatively, in lieu of an in-house laboratory, large scale manufacturers can also utilize the provisions of Sharing of testing facilities as per the Guidelines for Grant of Licence available on BIS website www.bis.gov.in. (Under Conformity Assessment>Product Certification Process). Even for subcontracted tests, provisions for sharing of testing facilities can be utilized.

2.4 TEST RECORDS- The manufacturers maintaining an in-house laboratory or utilizing common cluster-based facilities or shared test facilities shall maintain test records for the tests carried out to establish conformity. For the tests being subcontracted to BIS recognized/empanelled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025, test reports issued by the laboratories shall be available for inspection by BIS.

3. MARKING - The Standard Mark as given in the Schedule of the licence shall be incorporated legibly and indelibly on **each Stationary Storage Type Electric Water Heaters** provided always that the **Stationary Storage Type Electric Water Heaters** so marked conforms to each requirement of the specification.

3.1 Marking shall be done as per the Cl. 7 of **IS 302 (Part 2/ Sec 21) : 2024/ IEC 60335-2-21 : 2022**.

3.2 Additional Marking requirements: The material shall also be marked with the following additional requirement on packaging:

- a) “For BIS certification details please visit www.bis.gov.in”
- b) Capacity in Litres
- c) Material of inner tank of the **Stationary Storage Type Electric Water Heaters**
- d) Each Stationary Storage Type Water Heaters shall be provided with the instruction manual for installation, operation and use, routine maintenance and safety precautions.

4. REJECTION - All the production which conforms to the Indian Standard and covered under the scope of this licence shall be marked with the Standard Mark. Disposal of non-conforming product shall be done in such a way so as to ensure that there is no violation of provisions of BIS Act, 2016.

TABLE 1
(ONLY FOR GUIDANCE PURPOSE)

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Methods			No. of Sample	Frequency	Remarks
		Clause	Reference				
24	Components	24	IS 302 (Part 1)/ IEC 60335-1, IS 302 (Part 2/ Sec 21)/ IEC 60335-2-21	S	Each consignment of components received	Further testing is not required if supplied with BIS Standard Mark or with Test certificate, which ever applicable	
22.1.3	Earth Continuity Test	A-1	IS 302 (Part 1)/ IEC 60335-1	R	Each Stationary Storage Type Electric Water Heater		
22.1.3	Electric Strength Test	A-2		R			
22.1.3	Functional Test	A-3		R			
	Pressure Test	A.101		R			
7	Marking and Instruction	7	IS 302 (Part 1)/ IEC 60335-1, IS 302 (Part 2/ Sec 21)/ IEC 60335-2-21	R	Firm should exercise adequate control so that whole production should meet the requirements. Records shall be maintained		
8	Protection against access to live parts	8	IS 302 (Part 1)/ IEC 60335-1	R	One sample of each model of Stationary Storage Type Electric Water Heaters manufactured in the period of three months.		
12	Charging of metal-ion batteries	12		R			
10	Power Input & Current	10		R			
13	Leakage current & electric strength at operating temperature	13		R			

27	Provision for Earthing	27		R	
14	Transient Overvoltage	14	IS 302 (Part 1)/ IEC 60335-1	S	One sample of each model of Stationary Storage Type Electric Water Heaters manufactured in the period of six months.
16	Leakage Current & Electric Strength	16		S	
17	Overload Protection of Transformers and associated circuits	17		S	
20	Stability & Mechanical Hazards	20		S	
21	Mechanical Strength	21		S	
23	Internal Wiring	23		S	
26	Terminals for external conductors	26		S	
30	Resistance to heat & fire	30		S	
32	Radiation, toxicity and similar hazards	32		S	
11	Heating	11	IS 302 (Part 1)/ IEC 60335-1, IS 302 (Part 2/ Sec 21)/ IEC 60335-2-21	S	One sample of each model of Stationary Storage Type Electric Water Heaters manufactured in the period of six months.
15	Moisture Resistance	15		S	
19	Abnormal Operation	19		S	
22	Construction	22		S	
25	Supply Connections & external flexible cords	25		S	
28	Screws & Connections	28		S	
29	Clearances, creepage distances & solid insulation	29		S	
31	Resistance to rusting	31		S	

ANNEX – D

एक दिन में संभावित परीक्षण Possible Tests in a day

1. Pressure Test (Cl. 22.101, A.101)
2. Protection against access to live parts (Cl. 8)
3. High Voltage (Cl. 13.2.2 of IS 302 (Part 1))
4. Earthing Connection (Cl. 27)
5. Power Input and Current (Cl. 10)
6. Heating (Cl. 11)
7. Leakage Current & Electric Strength at operating temperature (Cl. 13)
8. Leakage Current & Electric Strength (Cl. 16)
9. Mechanical Strength (Cl. 21)
10. Internal Wiring (Cl. 23)
11. Supply connections & external flexible cords (Cl. 25)
12. Terminals for external conductors (Cl. 26)
13. Provision for Earthing (Cl. 27)
14. Screws and Connections (Cl. 28)
15. Stability and Mechanical Hazards (Cl. 20)